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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/721,698	JANSSEN, TERRANCE E.	
Examiner	Art Unit		
John K. Ford	3744		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 10/31/07

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-8, 10-18, 20-31, 33-35, 37-39 is/are pending in the application.
4a) Of the above claim(s) 10-12, 20-21, 33-35, 37-39 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-8, 13-18, 20-31 and 36 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application
6) Other: _____

Applicant's 30 page response filed with the RCE of 10/31/2007 has been carefully considered. Beginning on page 12 of that response, applicant uses section headings that are conveniently reproduced below in the same order. The examiner addresses comments as necessary.

Remarks (page 12 of 30): Accurate

Summary of Examiner Telephone Interview (page 12 of 30): Accurate

First Matter (page 12 of 30): Moot. Given that it still hasn't been established by applicant whether or not the GFX G2-12 of Exhibit E-2 predates November 27, 2001, the examiner withdraws the rejection. Rejections will not be based on speculative prior art. Whether or not applicant's efforts in ascertaining whether or not the GFX G2-12 of Exhibit E-2 predates November 27, 2001 have been reasonable is not the examiner's responsibility to ascertain, nor is the examiner in a position to make such a determination.

Conclusion of First Matter (Page 16 of 30): Moot, see immediately above.

Second Matter (page 16 of 30): Flattened sidewalls in helically coiled GFX heat exchangers admitted to be older than November 27, 2001. Currently, the issue is moot because the flattened limitation has been removed from all claims.

Conclusion of Second Matter (Page 16 of 30): Moot, see immediately above.

Third Matter (page 17 of 30): Website publication of applicant's water mains idea admitted to be unprotected by any confidentiality agreement or other indicia of secrecy is not "copying" of the invention, even if that publication is assumed to be of applicant's

origin. If applicant had wanted his idea kept confidential and not published on a website he should have had a confidentiality agreement signed by the parties to whom he disclosed his idea. To have evidence of copying, one must have, as a first step, some kind of copying. Applicant has provided no such evidence. There is no evidence that anyone, upon seeing the website publication of applicant's water mains idea, copied what was shown there. As the examiner has stated before, if GFX wanted to use applicant's unprotected idea in an effort to sell more of its heat exchanger product that fact alone does not establish any copying. For example, applicant has presented no evidence that would suggest that GFX, after publication of applicant's idea on the website had any change in their sales at all as a consequence of that website publication. Applicant has been unable to point to anyone actually having made a device that would infringe the current claims, if the claims were in fact patented. It is submitted applicant could not even prove contributory infringement on the part of GFX because applicant has failed to prove that there is anyone who would infringe these claims if patented. Applicant would likely fail as well given that he didn't take even the least precaution (e.g. a confidentiality agreement) to prevent the free dissemination of his idea. Under such circumstances it is not understood how GFX can be viewed as a copyist. **In fact, applicant's latest evidence suggests that GFX has no record of ever selling any GFX G2-12 heat exchanger (apparently a necessary component to construct applicant's water mains system)** (see 10/31/2007 response page 14, second and third full paragraph). If that is the case, there is no evidence of any activity by others that, if these claims were patented, would constitute infringement, since at its

core infringement requires making, using or selling the entire patented device (not just the heat exchanger of the patented device, which has other non-infringing uses such as in the apartment heater system of Exhibit E-2). In other words, even if applicant's system were patented, there is no evidence that anyone has actually made or used applicant's system falling within the scope of the current claims. Coupled with the fact that applicant has made (non-confidential) public presentations attempting to induce sales (e.g. presentation of November 13, 2002, Exhibit B-7) that have not resulted in any systems being installed, there is no evidence that anyone (authorized by applicant or not), including applicant, has ever reduced this system to actual practice. Therefore, there has been no copying. Publication of an unprotected idea on a website to induce sales of a heat exchanger component, that apparently has never been sold, and that has substantial non-infringing uses, is not evidence of any "copying" of applicant's claimed water mains system by others.

Fourth Matter (page 17 of 30): Applicant has identified no other co-pending application(s) besides the one that the examiner identified to applicant.

Conclusion of Fourth Matter (page 17 of 30): See immediately above.

Requirement for documents (page 18 of 30): Applicant apparently has not been able overcome the computer problems or locate copies of the required materials.

Conclusion to Requirement for documents (page 18 of 30): See immediately above.

Alleged Lack of Conception Prior to the Critical Date (page 19 of 30): Accurate.

Lack of Diligence as to the Invention (page 19 of 30): The case law is interpreted in the context of the case in which it was decided and may or may not be applicable to the

facts of the current case. It is true that Mr. Janssen may have been engaged in "all sorts of activities", but it seems to be a fiction to state that all of those activities related directly to reducing his invention to practice (either actual reduction or constructive reduction). Without diminishing any of the detailed analysis given below and contrary to applicant's assertions, Exhibits B-2 through B-5 (attempting to cover a required diligence period from November 27, 2001 through August 28, 2002) show 9 months in which the water mains idea was never mentioned. By their own terms Exhibits B-2 through B-5 show that Mr. Janssen was engaged in trying to sell just about any kind alternative energy system that the buyer could possibly want. Not once in any of those documents B-2 through B-5 does Mr. Janssen mention that he asked for permission to install his water mains system on the property of that particular potential buyer. This is nine months of inactivity with respect to the claimed invention. If as counsel suggests "a site had to be found in which to install the system" then Exhibits B-2 through B-5 would have reflected that Mr. Janssen explained the system to that particular potential buyer and asked that particular potential buyer if he or she would be willing to have the system installed assuming that regulatory approval was obtained. Nothing of the kind is found there. Exhibits B-2 through B-5 simply show that Mr. Janssen was engaged in what is apparently his livelihood, selling a broad range of alternative energy systems including photovoltaic and wind power (neither of which is even remotely related to the water mains idea) as well as geothermal. There is no evidence that he mentioned his system to any prospective buyers or asked for their permission or even took any assessment of how suitable their site was for installation of the system. Nothing related specifically to

the water mains idea exists in Exhibits B-2 through B-5 and none months of inactivity as to the claimed invention is simply too long a lapse to qualify as diligence. Consequently JP '717 remains as prior art.

Support in Provisional application (page 21 of 30): Applicant has amended the claims so that support for all of the limitations in the independent claims can be found in the provisional application.

103 Rejections (page 22 of 30): Moot in light of new claims and new prior art.

Attempt at removal of JP 2002-30717 (page 23 of 30): Failure of a showing of diligence for nine months during the requisite period for which diligence must be shown does not permit removal of the reference. JP 2002-30717 remains as prior art.

Non-obviousness of Claims 1, 14, 28 (page 23 of 30): Graham v. Deere is the proper standard, as reaffirmed by the Supreme Court in its 2007 KSR decision.

Reasonable Expectation of Success (page 25 of 30): Applicant argues that the structure of JP '717 is used in a waste water system not a supply water system and Bardenheier lacks any disclosure of what the examiner considers to be garden variety heat exchanger details. **Contrary to applicant's assertion, the JP '717 prior art does disclose inserting the prefabricated pipe 2 with heat exchanger 1 into an existing pipe 2' in paragraphs 0065 and 0076 of the translation attached to JP '717.** As admitted by applicant Bardenheier does disclose a heat exchanger in combination with a municipal water main. The fact that Bardenheier's heat exchanger 14 is "nondescript" (a pejorative selected by applicant's representative) does not diminish the fact that it is a heat exchanger and the schematic representation of heat

exchangers in the heat exchange art commonplace. It is no less of a heat exchanger than if it were drawn down to the last detail. Regarding the assertion that only applicant could have ascertained that a helical coil heat exchanger wrapped around a pipe could transfer heat to or from a municipal water main is contradicted by Brubaker (USP 622,113) who recognized that over 100 years ago. The argument is contradicted by fact and is therefore unpersuasive. Moreover the notion that there is some kind of unexpected or unpredictable result associated with using a helical coil wrapped around a pipe as a heat exchanger is without any factual support. This construction is extremely well known and applicant has presented no evidence (test results etc) to show that there anything unpredictable about it. It has been known for over 100 years in this art as evidenced by Brubaker.

Alleged copying by GFX (page 27 of 30): GFX as explained, both above and below, copied nothing. Unlike the case law cited by applicant, there is no evidence that GFX tried at all to design a product similar to applicant's invention and then gave up on its efforts and copied applicant's system. All they did was published applicant's idea on their website, an idea presented to them by applicant without even a token effort to protect it by any confidentiality agreement. Website publication of applicant's water mains idea admitted to be unprotected by any confidentiality agreement or other indicia of secrecy is not "copying" of the invention, even if that publication is assumed to be of applicant's origin. If applicant had wanted his idea kept confidential and not published on a website he should have had a confidentiality agreement signed by the parties to whom he disclosed his idea putting them on notice that the idea was protected.

Furthermore, to have evidence of copying, one must have, as a first step, some kind of copying. Applicant has provided no such evidence. There is no evidence that anyone, upon seeing the website publication of applicant's water mains idea, copied what was shown there. As the examiner has stated before, if GFX wanted to use applicant's unprotected idea in an effort to sell more of its heat exchanger product that fact alone does not establish any copying. For example, applicant has presented no evidence that would suggest that GFX, after publication of applicant's idea on the website had any change in their sales at all as a consequence of that website publication. Applicant has been unable to point to anyone actually having made a device that would infringe the current claims, if the claims were in fact patented. It is submitted applicant could not even prove contributory infringement on the part of GFX because applicant has failed to prove that there is anyone who would infringe these claims if patented. Applicant would likely fail as well given that he didn't take even the least precaution (i.e. a confidentiality agreement) to prevent the free dissemination of his idea. Under such circumstances it is not understood how GFX can be viewed as a copyist. **In fact, applicant's latest evidence suggests that GFX has no record of ever selling any GFX G2-12 heat exchanger (apparently a necessary component to construct applicant's water mains system)** (see 10/31/2007 response page 14, second and third full paragraph). If that is the case, there is no evidence of any activity by others that, if these claims were patented, would constitute infringement, since at its core infringement requires making, using or selling the entire patented device (not just the heat exchanger of the patented device, which has other non-infringing uses such as in the apartment heater system of

Exhibit E-2). In other words, even if applicant's system were patented, there is no evidence that anyone has actually made or used applicant's system falling within the scope of the current claims. Coupled with the fact that applicant has made (non-confidential) public presentations attempting to induce sales (e.g. presentation of November 13, 2002, Exhibit B-7) that have not resulted in any systems being installed, there is no evidence that anyone (authorized by applicant or not), including applicant, has ever reduced this disclosed system to actual practice. Therefore, there has been no copying. Publication of an unprotected idea on a website to induce sales of a heat exchanger component, that apparently has never been sold, and that has substantial non-infringing uses, is not evidence of any "copying" of applicant's claimed water mains system by others.

LACK OF DILIGENCE AS TO THE INVENTION

The diligence requirement is set forth in MPEP Sections 715.07(a) and 2138.06 and those sections are incorporated here by reference.

In the response of December 6, 2006, counsel points out that exhibit B-1 (which is out of sequence timewise) is dated June 28, 2002. Even assuming that counsel was correct and that Exhibit B-1 (which, by its own terms is an E-mail that asks for a price on a heat exchanger, which may or may not be related to the disclosure of the claimed system) relates to the claimed invention and shows diligence as to the claimed invention, there is still no diligence shown from January 31, 2002 through June 28,

2002 as to the claimed invention, approximately 6 months of unexplained non-activity.

According to the MPEP 2138.06 even a two-day period of inactivity can be fatal.

Counsel asserts, correctly, "One cannot just bypass all the regulatory and site restrictions and proceed in installing a system as claimed without permission and approval by regulatory authorities. It takes time and effort to obtain such permissions" (December 6, 2006 response, page 21). The only permission that applicant ever asked for did not come until November 29, 2002 (and that is only a draft according to Exhibit B-2) another unexplained lapse of nearly ten months from January 31, 2002 and five months from the June 28, 2002 inquiry as to how much a heat exchanger would cost.

Contrary to counsel's assertions none of Exhibits B-2, B-3, B-4 or B-5 by their own terms relate to the claimed invention. They relate to generalized offers to install all sorts of disparate systems ranging from wind to photovoltaics (see Exhibit B-3, for example). Furthermore, "individual geothermal HVAC systems" would not, as the term would be understood by those of skill in this art, necessarily relate to exchanging heat with a water main. Only B-1 (dated 6/28/02), B-6 (dated 8/29/02) B-7 (dated 11/4/02), B-8 (11/13/02) and B-9 (12/21/02) do, with many months of intervening unexplained non-activity, particularly between 01/31/02 and 06/28/02, as to the claimed invention. Generalized attempted sales activity as to a wide variety of alternative energy systems does not demonstrate diligence as to the claimed invention.

Exhibit B-2 (January 15, 2002) "Metropolitan Law Center LTD" does not disclose any diligence as to the claimed invention. It only shows some "central geothermal system" activity. In fact it appears that that some sort of loop system to each lot was contemplated – not what was disclosed in the aforementioned drawing of December 2001.

Exhibit B-3 (May 23, 2002) "Bolin Creek Cohousing" does not disclose any diligence as to the claimed invention. It only shows some generalized "Alternative Energy, geothermal, Wind Generation and Photovoltaics" activity. Nothing corresponds to that system disclosed in the aforementioned drawing of December 2001.

Exhibit B-3 (May 28, 2002) "Bolin Creek Cohousing" does not disclose any diligence as to the claimed invention. It only shows some generalized "Alternative Energy, geothermal, Wind Generation and Photovoltaics and Fuel Cells" activity. Nothing corresponds to that system disclosed in the aforementioned drawing of December 2001.

Exhibit B-4 (Notes/History, 2002). Again, no description of anything other than a broad offer to install any of a large number of alternative energy sources. Nothing specific to the system disclosed in the aforementioned drawing of December 2001 is mentioned.

Exhibit B-5 (Notes/History, 2002). Again, no description of anything other than a broad offer to install any of a large number of alternative energy sources. Nothing specific to the system disclosed in the aforementioned drawing of December 2001 is mentioned.

Exhibit B-6 (August 29, 2002). The bare mention of in Subject title "Water Main Heat Exchanger" and nothing more is disclosed. Nothing specific to the system disclosed in the aforementioned drawing of December 2001 is disclosed. No details as to what it is are given.

Exhibit B-7 (November 4, 2002). "Using Potable Water in Heat Exchangers". Again, there are no details. Nothing specific to the system disclosed in the aforementioned drawing of December 2001 is disclosed.

Exhibit B-8, (Draft, dated November 29, 2002). First specific mention of the system disclosed in the aforementioned drawing of December 2001.

Exhibit B-9, (December 21, 2003). Second specific mention of the system disclosed in the aforementioned drawing of December 2001.

These exhibits do not support diligence for at least the time period between 01/31/02 and 06/28/02 and possibly the time period from 01/31/02 to 11/29/02, as to the claimed invention, because nothing in these supposed acts of diligence appears to be directly related to the invention claimed.

The very first problem in installing one of these heat exchangers in an existing water main would be the fact that it would undoubtedly violate municipal potable water and health codes. There is nothing to show that this problem even surfaced in applicant's evidentiary materials until November 29, 2002, when applicant requested a "variance" or waiver to permit insertion of the GFX heat exchanger into a water main in

Minnesota. This does not demonstrate that applicant was diligent for the entire period from December 2001 until November 2002, most notably between 1/31/02 and 6/28/02. Applicant has failed to provide persuasive evidence that he was diligent as to the claimed invention for at least the time period from 1/31/02 to 6/28/02. Accordingly he is denied any earlier date of invention than that of his provisional application (i.e. 11/27/02).

Moreover, the assertion (December 6, 2006 response, bottom of page 21) that from 1/31/02 to 6/28/02 applicant was scouting for a site in which to install the water mains heat exchanger system claimed here is **without any facts to support it in the record**. Those documents simply support that Mr. Janssen just wanted to sell whatever kind of alternative energy system (including wind, solar, fuel cells etc) the buyer wanted to buy. There is no mention of applicant's water mains heat pump system in any of Exhibits B2-B5. Nothing is disclosed except an offer to sell some undisclosed general geothermal system, not the water mains type that is disclosed and claimed here. From the evidence presented thus far applicant did not get serious about his invention (become diligent about his invention) until November 29, 2002 when he started to apply for a variance. There is no evidence that in scouting for an installation site, assuming that was what he was doing from 1/31/02 to at least 6/28/02, that Mr. Janssen was making anyone including

his prospective customers aware of his invention, so as to obtain permission to install it.

STATUS OF THE CLAIMS

Claims 1-8, 13-18, 28-31 and 36 remain readable on the elected species after the cancellation of claims 9, 19 and 32. Claims 10-12, 20-27, 33-35 and 37-39 are withdrawn from consideration at this time.

PRIOR ART REJECTIONS

Graham v Deere:

Scope and content of the prior art: See the prior art applied in the rejections below, all related to heat exchange and/or water systems

Differences between the prior art and claims at issue: See the rejections set forth below. The secondary references only supply conventional heat exchanger details that has been omitted from the primary reference because they form no part of the invention of the primary reference.

Resolving the level of ordinary skill: References themselves suggest one of ordinary skill in the art of heat exchange would have at least an undergraduate degree in engineering so as to perform the heat exchanger sizing calculations necessary to make the disclosed systems operative.

Secondary Considerations:

Lack of expectation of reasonable success: Applicant's argument is contradicted by fact. Over 100 years ago Brubaker disclosed transferring heat using a helically coiled tube attached to a section of a water main, what applicant asserts is unknown in terms of whether it will work.

Copying: applicant has not been able to demonstrate any copying as discussed above.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 4, 6, 7, 8, 13, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Bardenheier (USP 4,782,888), and any one of Brubaker (USP 622,113), JP 2002-30717 or the admitted prior art GFX heat exchanger having a wraparound tube with a flattened side wall satisfying all of the limitations of original claim 9.

Bardenheier teaches a municipal water line 16 with a heat exchanger 14 in thermal contact with the water in the municipal water main 16. The heat exchanger 14 transfers heat to a primary heat transfer liquid (water or water and propylene glycol) circulated in pipe system 11. Individual heat pumps (see col. 6, line 33) can be used to

transfer heat from the primary heat transfer liquid to the secondary fluid circulated through pipes 13. This secondary fluid can be FREON (see col. 3 lines 33-40) used to provide heating or cooling to a conditioned space occupied by the user. No details of the actual construction of heat exchanger 14 are disclosed. It is shown schematically as is typical in systems that do not depend on their patentability on the particular type of heat exchanger being used.

Brubaker shows a helical refrigerant containing coil 10 wrapped around a replaceable pipe section 7 interposed in a supply water main (1, 2) for supplying water to cities and towns for drinking and domestic purposes. As understood by those of ordinary skill as evidenced by applicant's own Exhibits, such water mains are normally maintained in a flooded state. A refrigerant is circulated through the replaceable pipe section from a refrigeration system that is not shown. It appears that the refrigeration system is configured to exchange heat with the water in the water main.

To have used the pre-fabricated replaceable pipe section 7 with the helical coil 10 of Brubaker in place of schematically shown heat exchanger 14 of Bardenheier would have been obvious to provide a "simple, inexpensive, and efficient means" for transferring heat to or from the water main as well as to permit easy installation and servicing (as disclosed in column 1, lines 9-28 of Brubaker, incorporated here by reference).

Figure 4 of JP '717 discloses a pre-fabricated pipe 2 having a heat exchanger 1 can be inserted into an existing (waste) water pipe 2 (see paragraphs 65 and 76 of the translation describing the installation in Figures 4 and 7, respectively). The heat

exchanger 1 transfers heat to a primary heat transfer fluid circulated in pipe 17, which forms a closed circuit. A reversible heat pump 11 provides heating or cooling to load equipment 20.

To have used the pre-fabricated pipe section 2 with heat exchanger tube 1 of JP '717 in place of schematically shown heat exchanger 14 of Bardenheier would have been obvious to avoid the problems disclosed in JP '717, paragraph 6 and 7, incorporated here by reference, and to ease construction as disclosed in JP '717, paragraph 8.

Alternatively, to have used the apparatus of JP 2002-30717 to recover heat from a municipal water supply rather than a waste water source would have been obvious in view of the fact that Bardenheier discloses municipal water "provides an outstanding source or sink of low grade thermal energy" for reasons stated in col. 4, lines 16-36 of Bardenheier, incorporated here by reference as well as because Brubaker explicitly teaches a heat exchange system similar to JP '717 operating on a supply main. That is, the prefabricated pipe section 2 of JP '717 would have been simply inserted into a new construction or an existing water main, rather than into a new construction or an existing waste water pipe. The water main installation would obviously require increased provisions to prevent contamination of the potable water in the event of a pipe breach, which is probably why most patents in this field prefer wastewater, however, there are clear reasons taught by Bardenheier for why potable water from the mains might be preferable and in Brubaker which explicitly teaches the same.

Finally, to have used the pre-fabricated replaceable pipe section of the admitted prior art GFX heat exchanger having a wraparound tube with a flattened side wall satisfying all of the limitations of original claim 9 in place of the schematically shown heat exchanger 14 of Bardenheier would have been obvious to one of ordinary skill because GFX had already secured regulatory approval to insert a heat exchanger into a municipal waste water conduit, making it more likely and hence advantageous as a teaching, suggestion or motivation that this prior approval would aid in an effort to "bootstrap" the prior approval into approval of insertion into the potable side of the municipal water system.

Regarding the claimed monitoring equipment, see element 18 of Bardenheier and the gauges 15 and 16 of Brubaker. Regarding the claimed "enclosing" structure see heat insulator 3 and protective cover 4 of JP '717 as well as the enclosure schematically shown in Figure 2 of Brubaker.

Claims 5, 16, 28-31 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art discussed immediately above (Bardenheier/Brubaker/JP '717/GFX), as applied to claims 4 and 15 above, and further in view of Fr 2381869 and Sherman.

Fr '869 teaches an enclosure 1 for a water main 5 and a sewer pipe 6 that are essentially of identical construction. A cover 2 is shown that clips into place. To have

used such an enclosure to enclose the water main of the prior art would have been obvious to permit easy access for inspection or repair and likewise to have locked it to prevent unauthorized access would have been obvious in view of Sherman.

Claims 1, 2, 3, 4, 6, 7, 8, 13, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Theil (DE 2930484) and Brubaker and optionally Bardenheier (USP 4,782,888) as a teaching reference.

Figures 1 and 2 of Theil disclose a pre-fabricated pipe 2 having a heat exchanger can be inserted into an existing main drinking water pipe 13. The heat exchanger transfers heat to a primary heat transfer fluid circulated in pipes 3, 4, which forms a closed circuit. A heat pump provides heating or cooling to the house 6.

Bardenheier teaches a municipal water line 16 with a heat exchanger 14 in thermal contact with the water in the municipal water main 16. The heat exchanger 14 transfers heat to a primary heat transfer liquid (water or water and propylene glycol) circulated in pipe system 11. Individual heat pumps (see col. 6, line 33) can be used to transfer heat from the primary heat transfer liquid to the secondary fluid circulated through pipes 13. This secondary fluid can be FREON (see col. 3 lines 33-40) used to provide heating or cooling to a conditioned space occupied by the user. No details of the actual construction of heat exchanger 14 are disclosed.

To have used the apparatus of Theil with the prefabricated heat exchanger construction of Brubaker using a helically coiled tube 10 wrapped around the pre-

fabricated pipe 7 inserted into a water main (used in place of heat exchangers 2 of Theil) to recover heat from a municipal water supply would have been obvious in view of the fact that Bardenheier discloses municipal water "provides an outstanding source or sink of low grade thermal energy" for reasons stated in col. 4, lines 16-36 of Bardenheier, incorporated here by reference. That is, in Theil the prefabricated pipe section of Brubaker would have been simply inserted into a new construction or an existing water main and then connected the rest of Theil's system in place of Theil's heat exchangers 2. To the extent that it is necessary to support the rejection it is well understood that the Brubaker pre-fabricated heat exchanger design for use in flooded water mains and shows the details of a heat exchanger coil wrapped around a section of replaceable pipe intended to be inserted into an existing water pipe which would have been obvious to have used to obtain a "simple, inexpensive and efficient" means for heat transfer to the supply main. These reasons are explicitly disclosed by Brubaker in column 1, lines 9-15.

Regarding the claimed monitoring equipment see elements 15 and 16 of Brubaker as well as element 18 of Bardenheier which latter element would have been obvious to have added to Theil/Brubaker combination described above to advantageously insure a safe water supply. Regarding the claimed "enclosing" structure, this appears to be shown in Figure 2 of Theil and Figure 2 of Brubaker (which appears to include a cover).

Claims 5, 16, 28-31 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art (Theil/Brubaker/ Bardenheier), as applied to claims 4 and 15 above, and further in view of Fr 2381869 and Sherman.

Fr '869 teaches an enclosure 1 for a water main 5 and a sewer pipe 6 that are essentially of identical construction. A cover 2 is shown that clips into place. To have used such an enclosure to enclose the water main of the prior art would have been obvious to permit easy access for inspection or repair and likewise to have locked it to prevent unauthorized access would have been obvious in view of Sherman.

SECONDARY CONSIDERATIONS:

Reasonable Expectation of Success (page 25 of 30): Applicant argues that the structure of JP '717 is used in a waste water system not a supply water system and Bardenheier lacks any disclosure of what the examiner considers to be garden variety heat exchanger details. **Contrary to applicant's assertion, the JP '717 prior art does disclose inserting the prefabricated pipe 2 with heat exchanger 1 into an existing pipe 2' in paragraphs 0065 and 0076 of the translation attached to JP '717.** As admitted by applicant Bardenheier does disclose a heat exchanger in combination with a municipal water main. The fact that Bardenheier's heat exchanger 14 is "nondescript" (a pejorative selected by applicant's representative) does not diminish the fact that it is a heat exchanger and the schematic representation of heat

exchangers in the heat exchange art commonplace. It is no less of a heat exchanger than if it were drawn down to the last detail. Regarding the assertion that only applicant could have ascertained that a helical coil heat exchanger wrapped around a pipe could transfer heat to or from a municipal water main is contradicted by Brubaker (USP 622,113) who recognized that over 100 years ago. The argument is contradicted by fact and is therefore unpersuasive. Moreover the notion that there is some kind of unexpected or unpredictable result associated with using a helical coil wrapped around a pipe as a heat exchanger is without any factual support. This construction is extremely well known and applicant has presented no evidence (test results etc) to show that there anything unpredictable about it. It has been known for over 100 years in this art as evidenced by Brubaker.

Alleged copying by GFX (page 27 of 30): GFX as explained, both above and below, copied nothing. Unlike the case law cited by applicant, there is no evidence that GFX tried at all to design a product similar to applicant's invention and then gave up on its efforts and copied applicant's system. All they did was published applicant's idea on their website, an idea presented to them by applicant without even a token effort to protect it by any confidentiality agreement. Website publication of applicant's water mains idea admitted to be unprotected by any confidentiality agreement or other indicia of secrecy is not "copying" of the invention, even if that publication is assumed to be of applicant's origin. If applicant had wanted his idea kept confidential and not published on a website he should have had a confidentiality agreement signed by the parties to

whom he disclosed his idea putting them on notice that the idea was protected. Furthermore, to have evidence of copying, one must have, as a first step, some kind of copying. Applicant has provided no such evidence. There is no evidence that anyone, upon seeing the website publication of applicant's water mains idea, copied what was shown there. As the examiner has stated before, if GFX wanted to use applicant's unprotected idea in an effort to sell more of its heat exchanger product that fact alone does not establish any copying. For example, applicant has presented no evidence that would suggest that GFX, after publication of applicant's idea on the website had any change in their sales at all as a consequence of that website publication. Applicant has been unable to point to anyone actually having made a device that would infringe the current claims, if the claims were in fact patented. It is submitted applicant could not even prove contributory infringement on the part of GFX because applicant has failed to prove that there is anyone who would infringe these claims if patented. Applicant would likely fail as well given that he didn't take even the least precaution (i.e. a confidentiality agreement) to prevent the free dissemination of his idea. Under such circumstances it is not understood how GFX can be viewed as a copyist. **In fact, applicant's latest evidence suggests that GFX has no record of ever selling any GFX G2-12 heat exchanger (apparently a necessary component to construct applicant's water mains system)** (see 10/31/2007 response page 14, second and third full paragraph). If that is the case, there is no evidence of any activity by others that, if these claims were patented, would constitute infringement, since at its core infringement requires making, using or selling the entire patented device (not just the heat exchanger of the patented

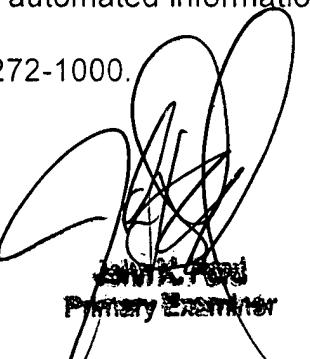
device, which has other non-infringing uses such as in the apartment heater system of Exhibit E-2). In other words, even if applicant's system were patented, there is no evidence that anyone has actually made or used applicant's system falling within the scope of the current claims. Coupled with the fact that applicant has made (non-confidential) public presentations attempting to induce sales (e.g. presentation of November 13, 2002, Exhibit B-7) that have not resulted in any systems being installed, there is no evidence that anyone (authorized by applicant or not), including applicant, has ever reduced this disclosed system to actual practice. Therefore, there has been no copying. Publication of an unprotected idea on a website to induce sales of a heat exchanger component, that apparently has never been sold, and that has substantial non-infringing uses, is not evidence of any "copying" of applicant's claimed water mains system by others.

As required by the Graham v. Deere analysis the examiner has weighed the secondary considerations against the teachings of the prior art. The obviousness conclusion is supported by the fact that the prior art is so strong, teaching the essentials of the system in the Bardeheier, Theil and JP '717 references and the details of the heat exchanger in the Brubaker, JP '717 and the admitted prior art GFX references coupled with such a weak showing of secondary considerations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Ford whose telephone number is 571-272-4911. The examiner can normally be reached on Mon.-Fri. 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JOHN K. FORD
Primary Examiner